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<th>Title</th>
<th>Applications of virtual reality.</th>
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<tr>
<td>Author(s)</td>
<td>Png, Willie.</td>
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Applications of Virtual Reality

Abstract

Virtual Reality has made a great impact to the world especially in the area of entertainment. Movies like Disclosure and Virtousity have captured the imagination and attention of the public. Despite all the hype created by the entertainment industry, VR technology has its real applications. In today's presentation, we will take a look at some of these applications and discuss the benefits of VR as well as the future trends.

Speaker

Willie Png is the vice-president and co-founder of Imagine Interactive Inc. Pte. Ltd which specializes in 3D applications and productions. The VR Show which was held at the National Museum in 1995, is one of Imagine's products. Willie has been in the Institute of Systems Science (ISS) since 1993 as a research staff. While at ISS, he worked on Networked VR and jointly developed a toolkit for creating multi-user VR environment. Prior to joining ISS, Willie was with Alias Research Inc. in Toronto, Canada, where he developed 3D animation paradigm and user interface tools. Willie receives his B. Math and M. Math in Computer Science from University of Waterloo. His research interest includes Splines, Networked VR, 3D modeling, 3D animation and Human-computer Interface.
Overview

- What is VR?
- History of VR
- VR Applications
- The Future of VR
- Video and Demo
What is VR? - Definition

A MAN-MADE environment that allows users to interact NATURALLY in the environment

What is VR? - Natural

- 3-D world
- sight, sound, smell, touch
What is VR? - Man-made

- Head Mounted Display and
  Stereographic display
- 3-D graphic environment
- 3-D I/O devices (tracking, 3-D sounds)
  and Force Feedback devices
- Software

What is VR? - Other names

- Virtual Reality (VR)
- Virtual Presence
- Artificial Reality
- Cyberspace
- Virtual Worlds
- Augmented Reality
What is VR? - Requirements

- Wide field of view
- Stereographic display
- Head tracking
- 3-D Interactions
- High frame rate - 30-60 frames/sec
- Low latency: below 50 msec

History of VR

- 1960: Stereographic TV patent issued to Morton Heilig
- 1962: Sensorama
- 1968: Head Mounted Display, Ivan Sutherland
- 1984: NASA Ames
- 1991-PRESENT: VR R&D community
VR Applications

- Training
- Entertainment
- Design
- Medical

VR Applications - Training

- Military Training
- Driving
- Fire Fighting
VR Applications - Entertainment

• Motion Rides
• Theme Parks
• Location-Based Entertainment
• Networked 3-D games
• Movies

VR Applications - Design

• Architectural Walkthroughs
• Vehicle Design
• Drug Design
VR Applications - Medical

- Ultrasound within the real patient
- MRI Visualization
- Treatments for phobia

VR Applications - Benefits

- Save time
- Save money
- Reduce risk
The Future of VR

• Entertainment and Medical Applications will lead the way
• Quality of hardware and software are improving
• Business is growing:
• Short falls: wearable, affordable and faster performance

Video and Demo

• Breast Biopsy and Cavern of the Past
• Dezo Technology developed by
  Imagine Interactive Inc. Pte. Ltd.
Read List

- www.sgi.com/virtual_reality
- *Virtual Environments: A Survey of the Technology*
  Richard Holloway - holloway@cs.unc.edu
  Anselmo Lastra - lastra@cs.unc.edu